The Value of Code Authorities White Paper and Power Control Systems (PCS)

by UL Solutions

Q Does UL Solutions have a document that supports the expansion of hiring code authorities to address the needs of the increased infrastructure buildouts and all the new computer chip factories, datacenters, EV charging networks and the electrification of everything adopted by recent legislation to fund these massive undertakings?

A UL Solutions has published a white paper titled "The Value of Code Authorities: How UL Solutions Supports the Inspection Community". The white paper details the importance of the code authorities role in assuring safe communities and the unprecedented rollout of largescale infrastructure upgrades, investments in the electrical grid, numerous factory buildouts, and developing and maintaining a network of electrical vehicle charging stations. The white paper draws attention to the fact that more code authorities are needed to meet this demand, not less.

Copies of the white paper will be available at the UL Solutions booth at each of the 2024 IAEI Section meetings as well as the International Code Conference (ICC) Conference Expo. A download will also be available at www.UL.com/valueofAHJs.

Q What is the difference between energy management systems and power control systems? What product categories does UL Certify (List) these products under?

A Energy management systems typically energize or de-energize electrical loads to achieve the desired use of electrical power. Energy management systems are UL Certified (Listed) under the product category Management Equipment, Energy (PAZX). This equipment is evaluated for compliance with UL 916, the Standard for Energy Management Equipment or UL 60730-1, the Standard for Automatic Electrical Controls - Part 1: General Requirements. The guide information and Certifications (Listings) for PAZX can be viewed on UL Product iQ at www.UL.com/piq, enter PAZX at the search field.

A power control systems (PCS) is a specific type of energy management system (EMS) that electronically limits or controls current or power to stay within defined limits for the prevention of overload of electrical distribution equipment or controlled conductors and/or implementing power export or import limits with respect to the electric utility. Power control systems control the output of one or more power production sources, including PV systems, batteries, and EVs, and

may be used in distributed energy resource (DER) systems. Power control systems are Certified (Listed) under the product category Power Control Systems (QIJE) and investigated for compliance with UL 3141, Outline of Investigation for Power Control Systems. The guide information and Certifications (Listings) for QIJE can be viewed on UL Product iQ at www.UL.com/piq, enter QIJE at the search field.

A PCS may consist of a single device or multiple devices operating as a system. The current or power measurement reference point(s) may be located internally to equipment or externally within the system. All elements of a PCS are intended to be installed in accordance with the National Electric Code® (NEC®). Section 705.13 in the 2020 edition or section 750.30 in the 2023 edition.

PCSs may be made up of generation devices (inverters, engine generators, etc.), energy storage systems, loads, load controls (EV charging power/load management, etc.), circuit controllers, or other equipment used to manage the current flow at the point of reference. The power control function may utilize communication-based approaches and may include monitoring devices and/or controllers remote from the point of control.

PCS-LC (load control only applications) may consist of the utility source alone, or a combination of the utility source and DER sources not controlled by the PCS-LC sized per *NEC* 705.12.

These products may also perform grid interactive functions including; net energy metering (NEM), virtual net energy metering (VNEM), and NEM export/import control. NEM export/import control can include unrestricted mode, export only mode, import only mode, no exchange mode, or combinations thereof.

The specific details of the product functionality of PCS are defined in the specific product Certification (Listing), instructions, and ratings.

With the publication of UL 3141, UL Solutions expects that these requirements will be referenced in other power distribution equipment standards for consistent application of requirements for power control systems integrated into other equipment.

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